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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,692	09/10/2003	Bimanranjan Mazumder	224366	7525
21186	7590	05/03/2006	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			BUTLER, PATRICK	
			ART UNIT	PAPER NUMBER
			1732	

DATE MAILED: 05/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/659,692		MAZUMDER, BIMANRANJAN	
	Examiner		Art Unit	
	Patrick Butler		1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>20060130</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I, Claims 1-13, in the reply filed on 30 January 2006 is acknowledged. As non-elected claims have been canceled, the examiner has withdrawn no claims.

Information Disclosure Statement

The information disclosure statement filed 30 January 2006 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered. Specifically, all of the JP references are both not in the English language and not included in a concise explanation of their relevance. Each JP reference has been lined through on the IDS to note that it has not been considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 is rejected due to the use of a Markush grouping without proper Markush language. With respect to Claim 3, it states, "selected from a group comprising" This appears to be describing a Markush group to follow, and the appropriate Markush language is recommended: selected from a group consisting of For purposes of examination, the examiner interprets the claim to read: selected from a group consisting of

Claim 5 recites the limitation "the ratio of binders" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim. For purposes of examination, it is assumed that "the ratio of binders" is the previously mentioned ratio: ratio of graphite powder to binder.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 3-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sims et al. (US Patent No. 5,496,392) in view of Hirschvogel et al. (US Patent No. 4,091,083), Aylsworth (US Patent No. 1,137,373), and Handl (US Patent No. 5,118,345).

With respect to Claim 1, Sims teaches a process of recycling spent aluminum pot liners in which the spent pot liners are collected (see col. 8, lines 15-17 and Table 1, col. 8, approximately line 60), crushed into sizes of $1/16$ - 4 in., which reads on the claimed

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range of $\frac{1}{2}$ - 125 micron (see col. 14, lines 51-54), adding chromic acid (see col. 7, lines 17-24), drying the mass at a temperature of 170-240 degrees F (76-116 degrees C), which reads on the claimed range of 80-120 degrees C (see col. 26, lines 41-44).

Sims does not appear to explicitly teach that the duration of adding the chromic acid is within the claimed range (e.g., 20-40 minutes). However, in this regard, Sims further teaches blending into a homogeneous semi-solid mass (see col. 6, lines 54-58). As such, Sims appears to recognize that the duration of adding the chromic acid is a result-effective variable since it is widely known in the art that adding acids tends to generate heat and needs to be done at a controlled rate to prevent explosion due to excessive heating. Since the duration of adding the chromic acid would be a result-effective variable, one of ordinary skill in the art would have obviously determined the optimum duration of adding the chromic acid applied in the process of Sims through routine experimentation based upon achieving the desired blend of chromic acid in the mass.

Sims does not appear to explicitly teach that the duration of the dried mass in the furnace is within the claimed range (e.g., about 1-3 minutes). However, in this regard, Sims further teaches heating to 1660 – 3100 degrees C (904 – 1704 degrees F), which reads on the claimed range of 900-980 degrees C. As such, Sims appears recognizes that the duration of the dried mass in the furnace is a result-effective variable to achieve heating of the material. Since the duration of the dried mass in the furnace would be a result-effective variable, one of ordinary skill in the art would have obviously determined

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the optimum Sims applied in the process of Sims through routine experimentation based upon arriving at the desired temperature within the material.

Sims does not specifically teach step D of Claim 1. Hirschvogel teaches washing the carbon and acid material after mixing and before drying (see col. 1, lines 36-42 and col. 2, lines 46-49 and 56-58). Sims and Hirschvogel are analogous because they both pertain to the same technical difficulty of adding acid to graphite before drying. It would have been obvious to one of ordinary skill in the art at the time the invention was made to rinse the material of Sims as taught by Hirschvogel in order to remove residual acid and to allow for recycling for further reaction with graphite (see col. 2, lines 46-49 and 56-58).

Sims does not specifically teach the temperature of adding the chromic acid. Aylsworth teaches that when mixing carbon material and acid, the temperature should be 100-130 degrees C (which reads on the claimed range of 130-140 degrees C) (see page 1, lines 80-95). Sims and Aylsworth are analogous because they both pertain to the same technical difficulty of adding acid to graphite before drying. It would have been obvious to one of ordinary skill in the art at the time the invention was made to mix acidic mass of Sims at the temperature taught by Aylsworth in order to have a effective temperature for oxidation (see page 1, lines 80-95).

Sims does not specifically teach steps G-M of Claim 1. Handl teaches mixing the powder with fire clay (binder) (see col. 2, lines 23-31), adding water (moistening the mixture with requisite amount of water to form a stiff dough) (see col. 2, lines 23-31), extruding the dough under pressure to obtain product in the form of cakes (see col. 1,

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lines 21-23 and col. 3, lines 25-27), having 0-35% water and drying (drying the discs to a moisture content of less than 10%) (see col. 2, lines 23-31 and col. 4, lines 18-22), heating the dried discs at 800 degrees C in an inert atmosphere and firing them (which reads on the claimed range of 400-1200 degrees C), with complete firing being optimized to included the range of 16 hours. It would necessarily given time to sufficiently cool for additional handling. Sims and Handl are analogous because they both are in the field of endeavor of graphite products. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the graphite of Sims in the process taught by Handl in order to make pencil lead (see Handl abstract).

With respect to Claim 3, Sims does not specifically teach using kaolin clay to make pencil lead. Handl teaches using kaolin clay (see col. 4, lines 18-22) to make pencil lead. Sims and Handl are analogous because they both are in the field of endeavor of graphite products. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the graphite of Sims in the process taught by Handl in order to make pencil lead (see Handl abstract).

With respect to Claims 4 and 5, Sims does not specifically teach the ratio of graphite to binders. Handl teaches the ratio of graphite to binders 1:0.5, which reads on the claimed ranges of 4:1 – 2:3 (Claim 4) and 3:0.5 – 1:1 (Claim 5) (see col. 4, lines 30-32). Sims and Handl are analogous because they both are in the field of endeavor of graphite products. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the graphite of Sims in the process taught by Handl in order to make pencil lead (see Handl abstract).

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With respect to Claims 6 and 7, the blending of the two materials is taught by Sims (see col. 6, lines 54-57). Sims does not specifically teach constantly stirring or dripping the materials together. It is well known in the art to constantly stir and drip the materials together as claimed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to constantly stir and drip the materials together in the mixing of Sims in order to avoid uncontrollable rapid heat production and to achieve a blended mixture.

With respect to Claims 8 and 9, the graphite produced by the Sims et al. in view of Hirschvogel et al., Aylsworth, and Handl would produce graphite with the crystalline size of about 20 micrometers and have 15% ash as claimed invention does principally because they teach the same process to make the graphite.

With respect to Claim 10, Handl does not appear to explicitly teach that the pressure of extrusion is within the claimed range (e.g., between 50 and 200 Kg/cm²). However, in this regard, Handl further teaches extruding the claimed material to produce 2.3 mm thick leads. As such, Handl obvious recognizes that the pressure of extrusion is a result-effective variable. Since the pressure of extrusion would be a result-effective variable, one of ordinary skill in the art would have obviously determined the optimum the pressure of extrusion applied in the process of Sims et al. in view of Hirschvogel et al., Aylsworth, and Handl through routine experimentation based upon producing the desired extruded product with the claimed composition.

With respect to Claim 11, Sims does not specifically teach indoor production. It is well known in the art for industrial processes to occur indoors (in the shade). It would

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have been obvious to one of ordinary skill in the art at the time the invention was made to practice the invention of Sims indoors to keep the production out of the rain/snow/uncontrolled atmospheric conditions.

With respect to Claim 12, cooling indoors after firing as taught by Handl would necessarily include the room temperatures of the claimed range of 24-30 degrees C.

With respect to Claim 13, the graphite produced by the Sims et al. in view of Hirschvogel et al., Aylsworth, and Handl would produce lead with the claimed traverse strength of 200 – 300 kg/cm as the instant invention principally because they teach the same process.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sims et al. (US Patent No. 5,496,392) in view of Hirschvogel et al. (US Patent No. 4,091,083), Aylsworth (US Patent No. 1,137,373), and Handl (US Patent No. 5,118,345) as applied to Claim 1 above, and further in view of Banker et al. (US Patent No. 5,164,174).

Sims in view of Hirschvogel et al., Aylsworth, and Handl teach the process of making pencil lead as previously described.

Sims does not explicitly teach that the SPL is a cathode. Banker teaches recycling SPL and that the liner acts as the cathode (see col. 2, lines 10-19). Sims and Banker both deal with the problem of needing the dispose of spent pot liners. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a spent pot liner as taught by Sims with the pot liner of Banker in order to dispose of the standard hazardous waste version of pot liners available (see Banker, col. 2, lines 23-36).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Maine et al. (US Patent No. 5,346,930) teaches utilizing recycled products to manufacture pencils (see Abstract).

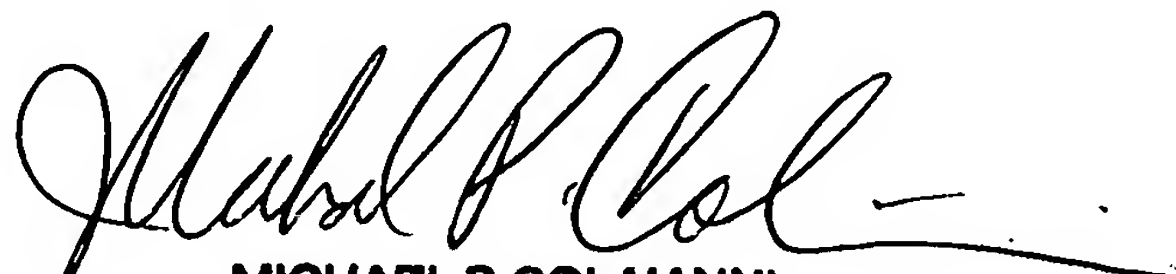
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Butler whose telephone number is (571) 272-8517. The examiner can normally be reached on Mon.-Thu. 7:30 a.m. - 5 p.m. and alternating Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Colaianni can be reached on (571) 272-1196. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PB

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